

Appl. No. 09/954,656
Amendment and/or Response
Reply to Office action of 20 January 2004

Page 3 of 8

Amendments to the Claims:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) A cathode ray tube provided with at least one oxide cathode comprising
 - a cathode carrier with
 - a cathode base of a cathode metal and
 - a cathode coating of an electron-emitting material containing a particle-particle composite material of
 - oxide particles of an alkaline earth oxide selected from the group formed by the oxides of calcium, strontium and barium, and
 - oxide particles having a first grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids, and
 - oxide particles having a second grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids.
2. (Previously presented) A cathode ray tube as claimed in claim 1, characterized in that
 - the oxide particles having the first grain size distribution have an average grain size $0.4 < d_{50} < 5 \mu\text{m}$, and
 - the oxide particles having the second grain size distribution have an average grain size $d_{50} \leq 0.4 \mu\text{m}$.
3. (Previously presented) A cathode ray tube as claimed in claim 1, characterized in that
 - the electron-emitting material comprises the oxide particles having the first grain size distribution in a concentration in the range from 0.1 to 20 wt.%, and
 - the oxide particles having the second grain size distribution in a concentration in the range from $1 \cdot 10^{-6}$ to $1 \cdot 10^{-3}$ wt.%.

DE000145 Amendment 4.120 MAC

Atty. Docket No. DE-000145

Appl. No. 09/954,856
Amendment and/or Response
Reply to Office action of 20 January 2004

Page 4 of 8

4. (Previously presented) A cathode ray tube as claimed in claim 1, characterized in that the oxide particles of the alkaline earth oxide selected from the group formed by the oxides of calcium, strontium and barium are doped with an element selected from the group formed by scandium, yttrium and the lanthanoids in a quantity ranging from 0.10×10^{-6} to 10×10^{-6} wt.%.

5. (Previously presented) A cathode ray tube provided with at least one oxide cathode comprising

a cathode carrier with

a cathode base of a cathode metal and

a cathode coating of an electron-emitting material containing a particle-particle composite material of

oxide particles of an alkaline earth oxide selected from the group formed by the oxides of calcium, strontium and barium, and

oxide particles having a first grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids, and

oxide particles having a second grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids, characterized in that

the electron-emitting material is a stratified composite of at least a first and at least a second layer,

said first layer comprising the oxide particles of the alkaline earth oxide selected from the group formed by the oxides of calcium, strontium and barium, and the oxide particles having the first grain size distribution of the oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids, and

said second layer comprising the oxide particles of the alkaline earth oxide selected from the group formed by the oxides of calcium, strontium and barium, and the oxide particles having the second grain size distribution of the oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids.

DE000145 Amendment 4.120 MAC

Atty. Docket No. DE-000145

Appl. No. 09/954,656
Amendment and/or Response
Reply to Office action of 20 January 2004

Page 5 of 8

6. (Previously presented) A cathode ray tube as claimed in claim 5, characterized in that the first grain size distribution is in a quantity ranging from 2 to 20 wt.%, and having the second grain size distribution is in a quantity ranging from 0.1 to 5 wt.%.

7. (Original) A cathode ray tube as claimed in claim 1, characterized in that the electron-emitting material comprises 1 to 3 wt.% particles of an activator metal selected from the group formed by Mg, Al, Fe, Si, Ti, Hf, Zr, W, Mo, Mn and Cr.

8. (Currently amended) A cathode ray tube provided with at least one oxide cathode comprising

a cathode carrier with

a cathode base of a cathode metal and

a cathode coating of an electron-emitting material containing a particle-particle composite material of

oxide particles of an alkaline earth oxide selected from the group formed by the oxides of calcium, strontium and barium, and

oxide particles having a first grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids, and

oxide particles having a second grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids, characterized in that

the electron-emitting material comprises 1 to 3 wt.% particles of an activator metal selected from the group formed by Mg, Al, Fe, Si, Ti, Hf, Zr, W, Mo, Mn and Cr, which are coated with a metal selected from the group formed by Pd, Rh, Pt, Co, Ni, Ir, and Re.

Appl. No. 09/954,656
Amendment and/or Response
Reply to Office action of 20 January 2004

Page 6 of 8

9. (Original) An oxide cathode comprising
- a cathode carrier with
 - a cathode base of a cathode metal and
 - a cathode coating of an electron-emitting material comprising a particle-particle composite material of
 - oxide particles of an alkaline earth oxide selected from the group formed by the oxides of calcium, strontium and barium, and
 - oxide particles having a first grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids, and
 - oxide particles having a second grain size distribution of an oxide selected from the group formed by the oxides of scandium, yttrium and the lanthanoids.